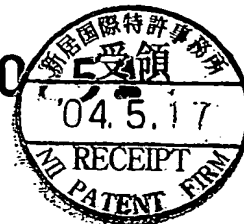


PATENT COOPERATION TREATY

0/540

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

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22 JUN 2005

PCT

see form PCT/ISA/220

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

1, (PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2004/000499

International filing date (day/month/year)

21.01.2004

Priority date (day/month/year)

23.01.2003

International Patent Classification (IPC) or both national classification and IPC

H05K13/08

Applicant

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/000499

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/000499

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-30
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-30
Industrial applicability (IA)	Yes: Claims	1-30
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/JP04/00499

The examination is being carried out on the **following application documents**:

Text for the Contracting States:

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV MC MK NL
PL PT RO SE SI SK TR

Description, pages:

1-78 as originally filed

Claims, No.:

1-30 as originally filed

Drawings, sheets:

1/48-48/48 as originally filed

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document:

D1: WO 02/13590 A (MATSUSHITA ELECTRIC INDUSTRIAL CO LTD) 14 February 2002 (2002-02-14)

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-30 does not involve an inventive step in the sense of Article 33(3) PCT.

The document **D1** is regarded as being the closest prior art to the subject-matter of claim 1 and discloses (the references in parentheses applying to this document):

An optimizing method that optimizes, using a computer, a component mounting order in which a mounter equipped with a mounting head picks up, at maximum L components, L being no less than 2, from an array of component feeders that hold components and mounts the components on a board, wherein the mounting head has, at maximum L pickup nozzles for picking up components, L being no less than 2, and a plurality of

components to be optimized include plural types of components which are picked up using no less than 2 pickup nozzles of different types (D1, claims 62 and 116), the optimizing method comprising determining the order of mounting all the plurality of components with the smallest task number where a task is a group of components to be mounted by one iteration of the repeated series of processes where the mounting heads picks up, transports and mounts components (D1, claim 62)

The subject-matter of claim 1 therefore differs from this known document **D1** in that:

A nozzle set is determined for mounting all the plurality of components, where a nozzle set is a combination of pickup nozzles and a mounting order is determined while maintaining the determined nozzle set.

In **D1** the nozzle set is not maintained, but nozzles are interchanged during the mounting process.

The problem to be solved by the present invention may therefore be regarded as:

Optimizing the mounting of a plurality of components.

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reason:

In **D1** several optimization methods are presented, each optimizing a different part of the mounting process. When it is noticed that changing nozzles takes a relatively long time (stated in the description page 3, lines 2-8) it is obvious to the skilled man to determine an optimal nozzle set with which the whole mounting process can be completed. No inventive skill is needed for this. This is merely another optimization method together with all the other ones in **D1**.

The same reasoning applies, *mutatis mutandis*, to the subject-matter of the corresponding independent claim 27, which therefore is also considered not inventive.